AMENDMENTS TO THE CLAIMS

1. (cancelled).

2. (currently amended) ~~The coding method of claim 1 further including~~ A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes;

(b) applying said delta code relative to said at least one non-fixed reference;

(c) allocating allowable and non-allowable characteristic regions relative to said at least one non-fixed reference; and

(d) applying the delta code relative to said allowable and non-allowable characteristic regions.

3. (original) The method of claim 2, wherein said allowable and non-allowable characteristic regions are relative to at least one definable characteristic value within a layout.

4. (original) The method of claim 3, wherein said at least one definable characteristic value is relative to at least one reference.

5-16. (cancelled) The method of claim 1, wherein said at least one reference is a characteristic value of a given pulse.

17. (currently amended) ~~The method of claim 16~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality

of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^n \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1, and n is a nonzero integer.

18. (currently amended) ~~The method of claim 16~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^{-1} \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

19. (currently amended) ~~The method of claim 16~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality

of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax \mod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

20. (currently amended) ~~The method of claim 16~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^2 \mod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

21. (currently amended) ~~The method of claim 16~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality

of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^3 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

22-23. (cancelled)

24. (currently amended) ~~The method of claim 23~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^n \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1, and n is a nonzero integer.

25. (currently amended) ~~The method of claim 23~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed

reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^{-1} \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

26. (currently amended) ~~The method of claim 23~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

27. (currently amended) ~~The method of claim 23~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed

reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^2 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

28. (currently amended) ~~The method of claim 23~~A method for coding at least one characteristic of at least one pulse within a pulse train, comprising the steps of:

(a) specifying pulse characteristics relative to at least one non-fixed reference in accordance with a delta code of a plurality of delta codes, wherein the pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes; and

(b) applying said delta code relative to said at least one non-fixed reference, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^3 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

29-30. (cancelled)

31. (currently amended) ~~The impulse transmission system of claim 30~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes-, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein allowable and non-allowable characteristic regions are allocated relative to said at least one non-fixed reference and said delta code is applied relative to said allowable and non-allowable characteristic regions.

32. (original) The impulse transmission system of claim 31, wherein said allowable and non-allowable characteristic regions are relative to at least one definable characteristic value within a layout.

33. (original) The impulse transmission system of claim 32, wherein said at least one definable characteristic value is relative to at least one reference.

34-45. (cancelled)

46. (currently amended) ~~The impulse transmission system of claim 45~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code

generation methodology is of the form $f(x;a) = ax^n \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1, and n is a nonzero integer.

47. (currently amended) ~~The impulse transmission system of claim 45~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^{-1} \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

48. (currently amended) ~~The impulse transmission system of claim 45~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code

is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax \mod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

49. (currently amended) ~~The impulse transmission system of claim 45~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^2 \mod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

50. (currently amended) ~~The impulse transmission system of claim 45~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated

using the sequential delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Sequential Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Sequential Delta Code generation methodology is of the form $f(x;a) = ax^3 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

51-52. (cancelled)

53. (currently amended) ~~The impulse transmission system of claim 52~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^n \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1, and n is a nonzero integer.

54. (currently amended) ~~The impulse transmission system of claim 52~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics

relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^{-1} \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

55. (currently amended) ~~The impulse transmission system of claim 52~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

56. (currently amended) ~~The impulse transmission system of claim 52~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta

code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^2 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

57. (currently amended) ~~The impulse transmission system of claim 52~~An impulse transmission system comprising:

a Ultra Wideband Transmitter;

a Ultra Wideband Receiver; and

said Ultra Wideband Transmitter and said Ultra Wideband Receiver employ a delta code of a plurality of delta codes, wherein said delta code specifies pulse characteristics relative to at least one non-fixed reference, wherein said pulse characteristics define one of a plurality of communication channels defined by said plurality of delta codes, wherein the delta code is a deterministic delta code, wherein the deterministic delta code is generated using the iterative delta code generation methodology, wherein the deterministic delta code is generated using the Rational Congruential Iterative Delta Code generation methodology, wherein the rational function employed in the Rational Congruential Iterative Delta Code generation methodology is of the form $f(x;a) = ax^3 \bmod M$, where f is a function of variable x, M is an integer modulus, a is a parameter, with possible values of 1, 2, ...M-1.

58. (cancelled)